

AREA

CONVERSION

SQUARE INCHES (sq. in.)	SQUARE CENTIMETERS (cm ²)	SQUARE FEET (sq. ft.)	SQUARE METERS (m ²)	SQUARE YARDS (sq. yds.)	SQUARE METERS (m ²)	ACRES (acre)	HECTARES (ha)	SQUARE MILES (sq. mi)	SQUARE KILOMETERS (km ²)
0.15500 = 1		1 = 0.09290		1 = 0.8361		1 = 0.4047		1 = 2.5900	
0.31000 = 2		2 = 0.18581		2 = 1.6723		2 = 0.8094		2 = 5.1800	
0.46500 = 3		3 = 0.27871		3 = 2.5084		3 = 1.2141		3 = 7.7700	
0.62000 = 4		4 = 0.37161		4 = 3.3445		4 = 1.6187		4 = 10.3600	
0.77500 = 5		5 = 0.46452		5 = 4.1807		5 = 2.0234		5 = 12.9500	
0.93000 = 6		6 = 0.55742		6 = 5.0168		6 = 2.4281		6 = 15.5400	
1.08500 = 7		7 = 0.65032		7 = 5.8529		7 = 2.8328		7 = 18.1300	
1.24000 = 8		8 = 0.74323		8 = 6.6890		8 = 3.2375		8 = 20.7200	
1.39500 = 9		9 = 0.83613		9 = 7.5252		9 = 3.6422		9 = 23.3100	
		10.764 = 1				2.471 = 1		0.3861 = 1	
		21.528 = 2				4.942 = 2		0.7722 = 2	
1 = 6.452		32.292 = 3		1.1960 = 1		7.413 = 3		1.1583 = 3	
2 = 12.903		43.055 = 4		2.3920 = 2		9.884 = 4		1.5444 = 4	
3 = 19.355		53.819 = 5		3.5880 = 3		12.355 = 5		1.9305 = 5	
4 = 25.807		64.583 = 6		4.7839 = 4		14.826 = 6		2.3166 = 6	
5 = 32.258		75.347 = 7		5.9799 = 5		17.297 = 7		2.7027 = 7	
6 = 38.710		86.111 = 8		7.1759 = 6		19.768 = 8		3.0888 = 8	
7 = 45.161		96.875 = 9		8.3719 = 7		22.239 = 9		3.4749 = 9	
8 = 51.613				9.5679 = 8					
9 = 58.065				10.7639 = 9					

UNITS OF AREA

UNITS	SQUARE INCHES	SQUARE LINKS	SQUARE FEET	SQUARE YARDS	SQUARE RODS	SQUARE CHAINS
1 sq. in. = 1		0.015 9423	0.006 944	0.000 772	0.000 036	0.000 001 594
1 Sq. link = 62.7264	1		0.4356	0.0484	0.0016	0.0001
1 Sq. ft. = 144	2.295 684	1		0.111 111 1	0.003 673 09	0.000 229 568
1 sq. yd. = 1,296	20.6612	9		1	0.033 057 85	0.002 066 12
1 sq. rod = 39,204	625	272.25	30.25	1		0.0625
1 sq. chain = 627,264	10,000	4356	484	16	1	
1 Acre = 6,272,640	100,000	43560	4840	160	10	
1 Sq mi. = 4,014,489,600	64 000 000	27,878,400	3 097 600	102 400	6400	
1 sq cm = 0.154 999 69	0.002 471 04	0.001 076	0.000 119 599	0.000 003 954	0.000 000 247	
1 m ² = 1549.9969	24.7104	10.76387	1.195 985	0.039 536 7	0.002 471 04	
1 Hectare = 15,499,969	247,104	107 638.7	11 959.85	395.367	24.7104	

UNITS OF AREA

CONVERSION

UNITS	ACRES	SQUARE MILES	SQUARE CENTIMETERS	SQUARE METERS	HECTARES
1 sq. in =	0.000 000 159 423	0.000 000 000 249	6.451 626	0.000 645 163	0.000 000 065
1 sq. link =	0.000 01	0.000 000 015 625	404.6873	0.040 468 73	0.000 004 047
1 sq. ft. =	0.000 022 956 8	0.000 000 035 870	929.0341	0.092 903 41	0.000 009 290
1 sq. yd =	0.000 206 612	0.000 000 322 831	8361.307	0.836 130 7	0.000 083 613
1 sq rod =	0.006 25	0.000 009 765 625	252 929.5	25.292 95	0.002 529 295
1 sq chain	0.1	0.000 156 25	4046873	404.6873	0.040 468 7
1 acre	1	0.001 562 5	40468726	4046.873	0.404 687
1 sq mi =	640	1	25 899 984 703	2.589 998	258.9998
1 sq cm =	0.000 000 024 710	0.000 000 000 000 386 10	1	0.000 1	0.000 000 001
1 sq M =	0.000 247 104	0.000 000 386 100 6	10,000	1	0.000 1
1 hectare	2.471 04	0.003 861 006	100 000 000	10,000	1

NOTE: NUMBERS UNDER-
LINED IN GREEN ARE
EXACT

3. BY ACT OF CONGRESS
JULY 28, 1866 —
1 yd (U.S.) = 3600 m.
3937

3. LITER IS VOLUME
OF 1 Kg OF H₂O AT
TEMP OF MAX. DENSITY
AT STANDARD ATMOSPHERIC
PRESSURE

1 Kg = 1000.028 cm³
4. 1 METER =

1553154.13
WAVE LENGTHS OF
RED CADMIUM LIGHT
UNDER SPECIFIED
CONDITIONS OF
TEMP., PRESSURE,
AND HUMIDITY.
THIS CORRESPONDS TO
A WAVE LENGTH
(CADMIUM RED) OF
6438.4696 X 10⁻⁹
MILLIMETERS

VOLUME

CONVERSION

CUBIC INCHES (cu. in.)	CUBIC CENTIMETERS cm ³	CUBIC FEET (cu. ft.)	CUBIC METERS (m ³)	CUBIC YARDS (cu. yd.)	CUBIC METERS m ³	CUBIC INCHES (cu. in.)	LITERS (liter)	CUBIC FEET (cu. ft.)	LITERS (liter)
1 = 16.3872		1 = 0.028317		1 = 0.7646		1 = 0.0163867		1 = 28.316	
2 = 32.7743		2 = 0.056634		2 = 1.5291		2 = 0.0327734		2 = 56.633	
3 = 49.1615		3 = 0.084951		3 = 2.2937		3 = 0.0491602		3 = 84.949	
4 = 65.5486		4 = 0.113268		4 = 3.0582		4 = 0.0655469		4 = 113.265	
5 = 81.9358		5 = 0.141585		5 = 3.8228		5 = 0.0819336		5 = 141.581	
6 = 98.3230		6 = 0.169902		6 = 4.5874		6 = 0.0983203		6 = 169.898	
7 = 114.7101		7 = 0.198219		7 = 5.3519		7 = 0.1147070		7 = 198.214	
8 = 131.0973		8 = 0.226536		8 = 6.1165		8 = 0.1310938		8 = 226.530	
9 = 147.4845		9 = 0.254853		9 = 6.8810		9 = 0.1474805		9 = 254.846	
0.06102 = 1						61.025 = 1			
0.12205 = 2		35.314 = 1		1.3079 = 1		122.050 = 2		0.035315 = 1	
0.18307 = 3		70.629 = 2		2.6159 = 2		183.075 = 3		0.070631 = 2	
0.24409 = 4		105.943 = 3		3.9238 = 3		244.100 = 4		0.105946 = 3	
0.30512 = 5		141.258 = 4		5.2318 = 4		305.125 = 5		0.141262 = 4	
0.36614 = 6		176.572 = 5		6.5397 = 5		366.150 = 6		0.176577 = 5	
0.42716 = 7		211.887 = 6		7.8477 = 6		427.175 = 7		0.211892 = 6	
0.48819 = 8		247.201 = 7		9.1556 = 7		488.200 = 8		0.247208 = 7	
0.54921 = 9		282.516 = 8		10.4635 = 8		549.225 = 9		0.282523 = 8	
		317.830 = 9		11.7715 = 9				0.317839 = 9	

UNITS OF VOLUME

UNITS	CUBIC INCHES	CUBIC FEET	CUBIC YARDS	CUBIC CENTIMETERS	CUBIC DECIMETERS	CUBIC METERS
1 cu. in. =	1	0.000578704	0.000001433	16.387162	0.016387	0.000016387
1 cu. ft. =	1728	1	0.0370370	28317.016	38.317016	0.028317016
1 cu. yd. =	46656	27	1	764559.4	764.5594	0.7645594
1 cc =	0.06102338	0.000035314	0.000001308	1	0.001	0.000001
1 c. deci =	61.02338	0.03531445	0.001307943	1000	1	0.001
1 cu. m =	61023.38	35.31445	1.3079428	1000000	1000	1

CAPACITY-LIQUID MEASURE

CONVERSION

[illegible]

UNITS OF CAPACITY - LIQUID MEASURE

UNITS	MINIMS	FLUID DRAMS	FLUID OUNCES	GILLS	LIQUID PINTS	LIQUID GALLONS QUARTS	LIQUID GALLONS QUARTS	MILLI- LITERS	LITERS	CUBIC INCHES
1 Minim	1	0.016667	0.00208333	0.000520833	0.000130208	0.00006276	0.000065104	0.061610	0.000061610	0.003760
1 fl. dram	60	1	0.125	0.03125	0.0078125	0.000976562	0.00390625	3.69661	0.00369661	0.225586
1 fl. oz.	480	8	1	0.25	0.0625	0.0078125	0.03125	29.5729	0.0295729	1.80469
1 gill	120	32	4	1	0.25	0.03125	0.125	118.292	0.118292	7.21875
1 pt. =	7680	128	16	4	1	0.125	0.5	473.167	0.473167	28.875
1 qt. =	15360	256	32	8	2	0.25	1	946.333	0.946333	57.75
1 gal.	61440	1024	128	32	8	1	4	3785.332	3.785332	231
1 m. l. =	16.2311	0.270518	0.0338147	0.00845368	0.00211342	0.000264178	0.00105671	1	0.001	0.061025
1 liter	16,231.1	270.518	33.8147	8.45368	2.11342	0.264178	1.05671	1000	1	61.0250
1 cu. in.	265.974	4.43290	0.554113	0.138528	0.0346320	0.00432900	0.0173160	16.3867	0.0163867	1

CAPACITY - DRY MEASURE

CONVERSION

U.S. dry QUARTS (qt.)	LITERS (liter)	U.S. Pecks (PK)	LITERS	U.S. Pecks (PKS)	Dekaliters (dKL)	U.S. bushel (bu)	Hectoliters hl.	U.S. bushels per acre	Hectoliters per Hectare
1 = 1.1012		1 = 8.810		1 = 0.8810		1 = 0.35238		1 = 0.8708	
2 = 2.2024		2 = 17.619		2 = 1.7619		2 = 0.70477		2 = 1.7415	
3 = 3.3036		3 = 26.429		3 = 2.6429		3 = 1.05715		3 = 2.6123	
4 = 4.4048		4 = 35.238		4 = 3.5238		4 = 1.40953		4 = 3.4830	
5 = 5.5060		5 = 44.048		5 = 4.4048		5 = 1.76192		5 = 4.3538	
6 = 6.6072		6 = 52.857		6 = 5.2857		6 = 2.11430		6 = 5.2245	
7 = 7.7084		7 = 61.667		7 = 6.1667		7 = 2.46668		7 = 6.0953	
8 = 8.8096		8 = 70.477		8 = 7.0477		8 = 2.81907		8 = 6.9660	
9 = 9.9108		9 = 79.286		9 = 7.9286		9 = 3.17145		9 = 7.8368	
0.9081 = 1		0.11351 = 1		1.1351 = 1		2.8378 = 1		1.1484 = 1	
1.8162 = 2		0.22703 = 2		2.2703 = 2		5.6756 = 2		2.2969 = 2	
2.7243 = 3		0.34054 = 3		3.4054 = 3		8.5135 = 3		3.4453 = 3	
3.6324 = 4		0.45405 = 4		4.5405 = 4		11.3513 = 4		4.5937 = 4	
4.5405 = 5		0.56756 = 5		5.6756 = 5		14.1891 = 5		5.7421 = 5	
5.4486 = 6		0.68108 = 6		6.8108 = 6		17.0269 = 6		6.8906 = 6	
6.3567 = 7		0.79459 = 7		7.9459 = 7		19.8647 = 7		8.0390 = 7	
7.2648 = 8		0.90810 = 8		9.0810 = 8		22.7026 = 8		9.1874 = 8	
8.1729 = 9		1.02161 = 9		10.2161 = 9		25.5404 = 9		10.3359 = 9	

UNITS OF CAPACITY DRY MEASURE

UNITS	DRY PINTS	DRY QUARTS	PECKS	BUSHELS	LITERS	DEKA LITERS	CUBIC INCHES
1 dry pt.	<u>1</u>	0.5	0.0625	0.015625	0.550599	0.055060	33.6003125
1 dry qt.	<u>2</u>	<u>1</u>	0.125	0.03125	1.101198	0.110120	67.200625
1 peck	<u>16</u>	<u>8</u>	<u>1</u>	0.25	8.80958	0.880958	537.605
1 bushel	<u>64</u>	<u>32</u>	<u>4</u>	<u>1</u>	35.2383	3.52383	2150.42
1 liter	1.81620	0.908102	0.113513	0.028378	<u>1</u>	0.1	61.0250
1 dekaliter	18.1620	9.08102	1.13513	0.28378	<u>10</u>	<u>1</u>	610.250
1 cu. in.	0.0297762	0.0148881	0.001860	0.000465	0.016387	0.001639	<u>1</u>

		MASS		CONVERSION	
GRAINS (grains)	Grams (g)	Apothecaries' drams (dr ap & 3)	TROY OUNCES (oz. t.)	Avoirdupois ounces (oz. avdp.)	Avoirdupois pounds (lb. avdp.)
		Grams (g)	GRAMS (g)		Kilograms (Kg.)
1 = 0.064799		1 = 3.8879	1 = 31.103	1 = 28.350	1 = 0.45359
2 = 0.129598		2 = 7.7759	2 = 62.207	2 = 56.699	2 = 0.90718
3 = 0.194397		3 = 11.6638	3 = 93.310	3 = 85.049	3 = 1.36078
4 = 0.259196		4 = 15.5517	4 = 124.414	4 = 113.398	4 = 1.81437
5 = 0.323995		5 = 19.4397	5 = 155.517	5 = 141.748	5 = 2.26796
6 = 0.388794		6 = 23.3276	6 = 186.621	6 = 170.097	6 = 2.72155
7 = 0.453592		7 = 27.2155	7 = 217.724	7 = 198.947	7 = 3.17515
8 = 0.518391		8 = 31.1035	8 = 248.828	8 = 226.796	8 = 3.62874
9 = 0.583190		9 = 34.9914	9 = 279.931	9 = 255.146	9 = 4.08233
15.4324 = 1		0.25721 = 1		0.035274 = 1	2.20462 = 1
30.8647 = 2		0.51441 = 2		0.070548 = 2	4.40924 = 2
46.2971 = 3		0.77162 = 3	0.032151 = 1	0.105822 = 3	6.61387 = 3
61.7294 = 4		1.02882 = 4	0.064301 = 2	0.141096 = 4	8.81849 = 4
77.1618 = 5		1.28603 = 5	0.096452 = 3	0.176370 = 5	11.02311 = 5
92.5941 = 6		1.54324 = 6	0.128603 = 4	0.211644 = 6	13.22773 = 6
108.0265 = 7		1.80044 = 7	0.160754 = 5	0.246918 = 7	15.43236 = 7
123.4589 = 8		2.05765 = 8	0.192904 = 6	0.282192 = 8	17.63698 = 8
138.8912 = 9		2.31485 = 9	0.225055 = 7	0.317466 = 9	19.84160 = 9
			0.257206 = 8		
			0.289357 = 9		
					1 Kg. = 2.204622341 drs

UNITS OF MASS LESS THAN POUNDS AND KILOGRAMS

UNITS	GRAMS	apothecaries scruples	pennyweights	avoidupois drams	apothecaries drams	avoidupois ounces	apothecaries ounces
1 grain	1	0.05	0.04166667	0.03657143	0.016666667	0.00228571	0.00208333
1 apoth. Scr.	20	1	0.83333333	0.7314286	0.33333333	0.0457143	0.04166667
1 pennywt	34	1.2	1	0.8777143	0.4	0.0548571	0.05
1 avo. dram	27.34375	1.3671875	1.139323	1	0.4557892	0.0625	0.056966196
1 ap. dram	60	3	2.5	2.194286	1	0.1371429	0.125
1 av. oz.	437.5	21.875	18.22717	16	7.29167	1	0.9114583
1 ap. oz.	480	24	20	17.55428 210.6514	8	1.0971429	1
1 ap. lb.	5760	288	240	210.6514	96	13.165714	12
1 av. lb.	7000	350	291.6667	256	116.6666667	16	14.583333
1 milligram	0.015432	0.000771618	0.000693015	0.000564383	0.000257206	0.000035274	0.000032158
1 gram	15.432356	0.771618	0.64301485	0.56438332	0.25720594	0.03527396	0.032150741
1 kilogram	15432.356	771.6178	643.01485	564.38332	257.20594	35.27396	32.150742

UNITS OF MASS GREATER THAN AVOIRDUPOIS OUNCES

UNITS	avoirdupois Ounces	avoirdupois pounds	SHORT HUNDRED WEIGHTS	SHORT TONS	LONG TONS	Kilograms	METRIC TONS
1 av. oz.	1	0.0625	0.000625	0.00003125	0.000027902	0.02834953	0.00028350
1 av. lb.	16	1	0.01	0.0005	0.000446428	0.453592427	0.000453592
1 short cwt.	1600	100	1	0.05	0.04464286	45.359243	0.045359243
1 sh. T.	32000	2000	20	1	0.8928571	907.18486	0.90718486
1 lg. T.	35840	2240	22.4	1.12	1	1016.04704	1.01604704
1 cwt.	35273.957	2204.62239	0.022046223	0.001102311	0.000984206	1	0.001
1 met. T.	35273.957	2204.62239	22.046223	1.1023112	0.98420670	1000	1

From above tables, it is possible to obtain any values by mere addition, provided the decimal point is shifted correctly.

all lengths, areas, & cu. measures in tables based on 1 meter = 39.37 in.
 all capacities are based on 1 liter = 1.000028 cubic decimeters. The gallon U.S. is 231 cu in. British, U.S. is 2150.42 cu in. The British gal is 277.420 cu in. and British Bushel is 2,219.36 cu in.

all weights are based on 1 avoirdupois lb = 453.5924277 grams.

UNITS OF MASS LESS THAN POUNDS AND KILOGRAMS CONVER.

UNITS	apoth. or troy pounds	avoirdupois pounds	Milligrams	Grams	Kilograms
1 grain	0.000173611	0.000142857	64.798918	0.064798918	0.000064798
1 apoth. scruple	0.003472222	0.002857143	1295.9784	1.2959784	0.001295978
1 pennywt.	0.004166667	0.003428571	1555.1740	1.5551740	0.001555174
1 aro. dram	0.004747179	0.00390625	1771.8454	1.7718454	0.001771845
1 apoth. dram	0.004166667	0.008571429	3887.9351	3.8879351	0.003887935
1 aroin. oz.	0.075954861	0.0625	28349.527	28.349527	0.02834953
1 ap. or troy oz.	0.083333333	0.06857143	31103.481	31.103481	0.03110348
1 ap. or troy lb.	1	0.8228571	373241.77	373.24177	0.37324177
1 aroin. lb.	1.2152778	1	453592.4277	453.5924277	0.453592427
1 milligram	0.000002679	0.00000220462	1	0.001	0.000001
1 gram	0.00267923	0.00220462	1000	1	0.001
1 kilogram	2.6792285	2.204622341	1000000	1000	1

WEIGHT OF WATER.

1 cubic inch = .03617 pounds

12 cubic inches = .434 pounds

1 cubic foot = 62.5 pounds.

1 cubic foot = 7.48052 U.S. gals.

1.8 cu ft. = 112.0 pounds

35.34 cu ft = 2240.0 pounds

1 cylindrical Inch = .02842 lbs.

12 cylindrical inches = .341 lbs.

1 cylindrical foot = 49.10 lbs.

1 cylindrical foot = 6.0 U.S. gals.

2.282 cylindrical feet = 112.0 lbs.

45.64 cylindrical feet = 2240.0 lbs.

1 imperial gal = 10.0 lbs.

11.2 imperial gals = 112.0 pounds

224 imperial gals = 2240.0 pounds

1 U.S. gals = 8.355 pounds

13.44 U.S. gals = 112.0 pounds

268.8 U.S. gals = 2240.0 pounds.

COMPARISON OF TONS AND POUNDS IN U.S.

TROY LB	AVERAGE POUNDS LBS	KILOGRAMS	SHORT TONS	LONG TONS	METRIC TONS
1	4.822857	0.37324	0.0004143	0.00036735	0.00037324
2	1.64571	0.74648	0.0008286	0.00073469	0.00074648
3	2.46857	1.11973	0.0012429	0.00110204	0.00111973
4	3.29143	1.49297	0.0016571	0.00146939	0.00149297
5	4.11429	1.86621	0.0020714	0.00183673	0.00186621
6	4.93714	2.23945	0.0024857	0.00220408	0.00223945
7	5.76000	2.61269	0.0028900	0.00257173	0.00261269
8	6.58286	2.98593	0.0032943	0.00293878	0.00298593
9	7.40571	3.35918	0.0037086	0.00330612	0.00335918
12.1538	1	0.45359	0.0005	0.00044693	0.00045359
2.43056	2	0.90718	0.0010	0.00089386	0.00090718
1.64583	3	1.36078	0.0015	0.00133929	0.00136078
4.86111	4	1.81437	0.0020	0.00178571	0.00181437
6.0639	5	2.26796	0.0025	0.00223214	0.00226796
7.27167	6	2.72155	0.0030	0.00267857	0.00272155
8.47944	7	3.17515	0.0035	0.00312500	0.00317515
9.68722	8	3.62874	0.0040	0.00357143	0.00362874
10.8950	9	4.08233	0.0045	0.00401786	0.00408233
2.47903	1	0.45359	0.0005	0.00044693	0.00045359
3.68729	2	0.90718	0.0010	0.00089386	0.00090718
4.89556	3	1.36078	0.0015	0.00133929	0.00136078
6.10383	4	1.81437	0.0020	0.00178571	0.00181437
7.31210	5	2.26796	0.0025	0.00223214	0.00226796
8.52037	6	2.72155	0.0030	0.00267857	0.00272155
9.72864	7	3.17515	0.0035	0.00312500	0.00317515
10.93691	8	3.62874	0.0040	0.00357143	0.00362874
12.14518	9	4.08233	0.0045	0.00401786	0.00408233
13.35345	10	4.53593	0.0050	0.00446429	0.00453593
14.56172	11	4.98952	0.0055	0.00491071	0.00498952
15.76999	12	5.44311	0.0060	0.00535714	0.00544311
16.97826	13	5.89670	0.0065	0.00580357	0.00589670
18.18653	14	6.35029	0.0070	0.00625000	0.00635029
19.39480	15	6.80388	0.0075	0.00669643	0.00680388
20.60307	16	7.25747	0.0080	0.00714286	0.00725747
21.81134	17	7.71106	0.0085	0.00758929	0.00771106
23.01961	18	8.16465	0.0090	0.00803571	0.00816465
24.22788	19	8.61824	0.0095	0.00848214	0.00861824
25.43615	20	9.07183	0.0100	0.00892857	0.00907183
26.64442	21	9.52542	0.0105	0.00937500	0.00952542
27.85269	22	9.97901	0.0110	0.00982143	0.00997901
29.06096	23	10.43260	0.0115	0.01026786	0.01043260
30.26923	24	10.88619	0.0120	0.01071429	0.01088619
31.47750	25	11.33978	0.0125	0.01116071	0.01133978
32.68577	26	11.79337	0.0130	0.01160714	0.01179337
33.89404	27	12.24696	0.0135	0.01205357	0.01224696
35.10231	28	12.70055	0.0140	0.01250000	0.01270055
36.31058	29	13.15414	0.0145	0.01294643	0.01315414
37.51885	30	13.60773	0.0150	0.01339286	0.01360773
38.72712	31	14.06132	0.0155	0.01383929	0.01406132
39.93539	32	14.51491	0.0160	0.01428571	0.01451491
41.14366	33	14.96850	0.0165	0.01473214	0.01496850
42.35193	34	15.42209	0.0170	0.01517857	0.01542209
43.56020	35	15.87568	0.0175	0.01562500	0.01587568
44.76847	36	16.32927	0.0180	0.01607143	0.01632927
45.97674	37	16.78286	0.0185	0.01651786	0.01678286
47.18501	38	17.23645	0.0190	0.01696429	0.01723645
48.39328	39	17.69004	0.0195	0.01741071	0.01769004
49.60155	40	18.14363	0.0200	0.01785714	0.01814363
50.80982	41	18.59722	0.0205	0.01830357	0.01859722
52.01809	42	19.05081	0.0210	0.01875000	0.01905081
53.22636	43	19.50440	0.0215	0.01919643	0.01950440
54.43463	44	19.95799	0.0220	0.01964286	0.01995799
55.64290	45	20.41158	0.0225	0.02008929	0.02041158
56.85117	46	20.86517	0.0230	0.02053571	0.02086517
58.05944	47	21.31876	0.0235	0.02098214	0.02131876
59.26771	48	21.77235	0.0240	0.02142857	0.02177235
60.47598	49	22.22594	0.0245	0.02187500	0.02222594
61.68425	50	22.67953	0.0250	0.02232143	0.02267953
62.89252	51	23.13312	0.0255	0.02276786	0.02313312
64.10079	52	23.58671	0.0260	0.02321429	0.02358671
65.30906	53	24.04030	0.0265	0.02366071	0.02404030
66.51733	54	24.49389	0.0270	0.02410714	0.02449389
67.72560	55	24.94748	0.0275	0.02455357	0.02494748
68.93387	56	25.40107	0.0280	0.02500000	0.02540107
70.14214	57	25.85466	0.0285	0.02544643	0.02585466
71.35041	58	26.30825	0.0290	0.02589286	0.02630825
72.55868	59	26.76184	0.0295	0.02633929	0.02676184
73.76695	60	27.21543	0.0300	0.02678571	0.02721543
74.97522	61	27.66902	0.0305	0.02723214	0.02766902
76.18349	62	28.12261	0.0310	0.02767857	0.02812261
77.39176	63	28.57620	0.0315	0.02812500	0.02857620
78.60003	64	29.02979	0.0320	0.02857143	0.02902979
79.80830	65	29.48338	0.0325	0.02901786	0.02948338
81.01657	66	29.93697	0.0330	0.02946429	0.02993697
82.22484	67	30.39056	0.0335	0.02991071	0.03039056
83.43311	68	30.84415	0.0340	0.03035714	0.03084415
84.64138	69	31.29774	0.0345	0.03080357	0.03129774
85.84965	70	31.75133	0.0350	0.03125000	0.03175133
87.05792	71	32.20492	0.0355	0.03169643	0.03220492
88.26619	72	32.65851	0.0360	0.03214286	0.03265851
89.47446	73	33.11210	0.0365	0.03258929	0.03311210
90.68273	74	33.56569	0.0370	0.03303571	0.03356569
91.89100	75	34.01928	0.0375	0.03348214	0.03401928
93.09927	76	34.47287	0.0380	0.03392857	0.03447287
94.30754	77	34.92646	0.0385	0.03437500	0.03492646
95.51581	78	35.38005	0.0390	0.03482143	0.03538005
96.72408	79	35.83364	0.0395	0.03526786	0.03583364
97.93235	80	36.28723	0.0400	0.03571429	0.03628723
99.14062	81	36.74082	0.0405	0.03616071	0.03674082
100.34889	82	37.19441	0.0410	0.03660714	0.03719441
101.55716	83	37.64800	0.0415	0.03705357	0.03764800
102.76543	84	38.10159	0.0420	0.03750000	0.03810159
103.97370	85	38.55518	0.0425	0.03794643	0.03855518
105.18197	86	39.00877	0.0430	0.03839286	0.03900877
106.39024	87	39.46236	0.0435	0.03883929	0.03946236
107.59851	88	39.91595	0.0440	0.03928571	0.03991595
108.80678	89	40.36954	0.0445	0.03973214	0.04036954
110.01505	90	40.82313	0.0450	0.04017857	0.04082313
111.22332	91	41.27672	0.0455	0.04062500	0.04127672
112.43159	92	41.73031	0.0460	0.04107143	0.04173031
113.63986	93	42.18390	0.0465	0.04151786	0.04218390
114.84813	94	42.63749	0.0470	0.04196429	0.04263749
116.05640	95	43.09108	0.0475	0.04241071	0.04309108
117.26467	96	43.54467	0.0480	0.04285714	0.04354467
118.47294	97	43.99826	0.0485	0.04330357	0.04400000
119.68121	98	44.45185	0.0490	0.04375000	0.04445444
120.88948	99	44.90544	0.0495	0.04419643	0.04490889
122.09775	100	45.35903	0.0500	0.04464286	0.04536333